RS1A/B - RS1M/B

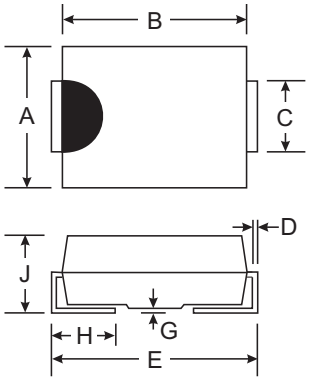
1.0A SURFACE MOUNT FAST RECOVERY RECTIFIER

Features

- Glass Passivated Die Construction
- Fast Recovery Time For High Efficiency
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- **Lead Free Finish/RoHS Compliant (Note 4)**

Mechanical Data

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: Cathode Band or Cathode Notch
- Marking Information: See Page 3
- Ordering Information: See Page 3
- SMA Weight: 0.064 grams (approximate)
- SMB Weight: 0.093 grams (approximate)



Dim	SMA		SMB	
	Min	Max	Min	Max
A	2.29	2.92	3.30	3.94
B	4.00	4.60	4.06	4.57
C	1.27	1.63	1.96	2.21
D	0.15	0.31	0.15	0.31
E	4.80	5.59	5.00	5.59
G	0.10	0.20	0.10	0.20
H	0.76	1.52	0.76	1.52
J	2.01	2.30	2.00	2.40

A, B, D, G, J, K, M Suffix Designates SMA Package
AB, BB, DB, GB, JB, KB, MB Suffix Designates SMB Package

Maximum Ratings and Electrical Characteristics @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	RS1 A/AB	RS1 B/BB	RS1 D/DB	RS1 G/GB	RS1 J/JB	RS1 K/KB	RS1 M/MB	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 5)	V_{RRM} V_{RWM} V_R	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Average Rectified Output Current @ T_T = 120°C	I_O	1.0							A
Non-Repetitive Peak Forward Surge Current, 8.3ms single half sine-wave Superimposed on Rated Load	I_{FSM}	30							A
Forward Voltage Drop @ I_F = 1.0A	V_{FM}	1.3							V
Peak Reverse Current @ T_A = 25°C at Rated DC Blocking Voltage (Note 5) @ T_A = 125°C	I_{RM}	5.0 200							μA
Reverse Recovery Time (Note 3)	t_{rr}	150				250	500		ns
Typical Total Capacitance (Note 2)	C_T	15							pF
Typical Thermal Resistance, Junction to Terminal (Note 1)	$R_{\theta JT}$	20							°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150							°C

Notes:
1. Valid provided that terminals are kept at ambient temperature.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
3. Reverse recovery test conditions: I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A. See figure 5.
4. RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see *EU Directive Annex Notes 5 and 7.*
5. Short duration pulse test used to minimize self-heating effect.

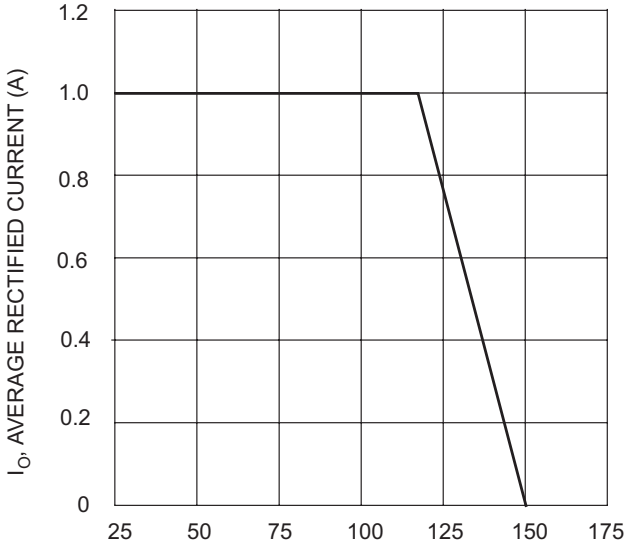


Fig. 1 Forward Current Derating Curve

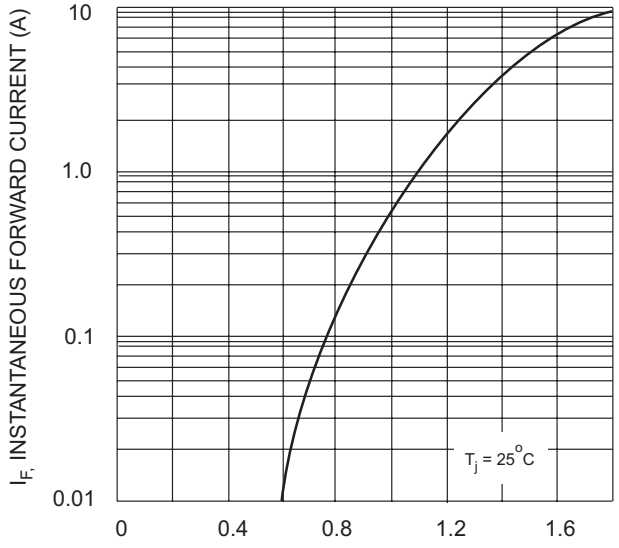


Fig. 2 Typical Forward Characteristics

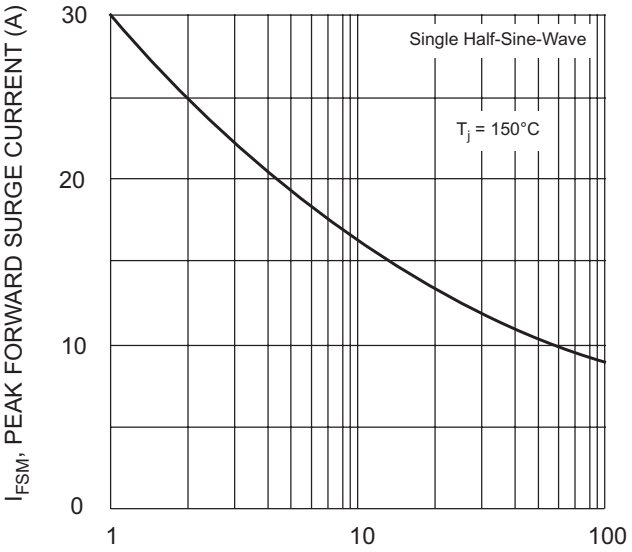


Fig. 3 Forward Surge Current Derating Curve

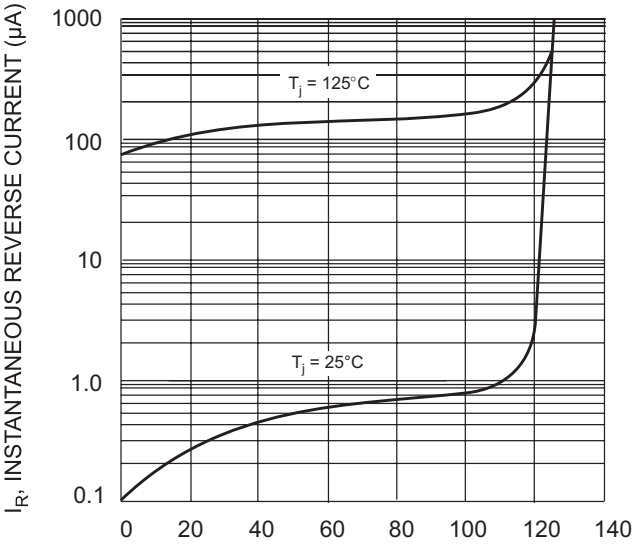
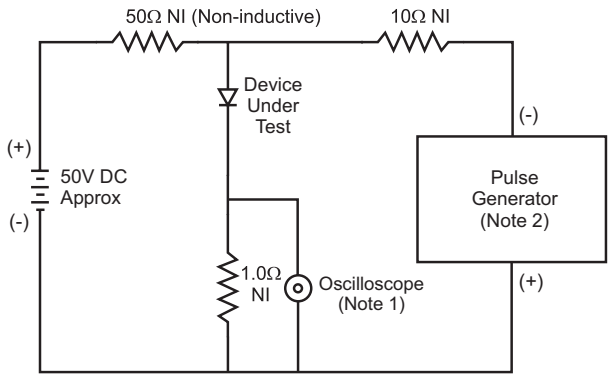


Fig. 4 Typical Reverse Characteristics



Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2. Rise Time = 10ns max. Input Impedance = 50Ω.

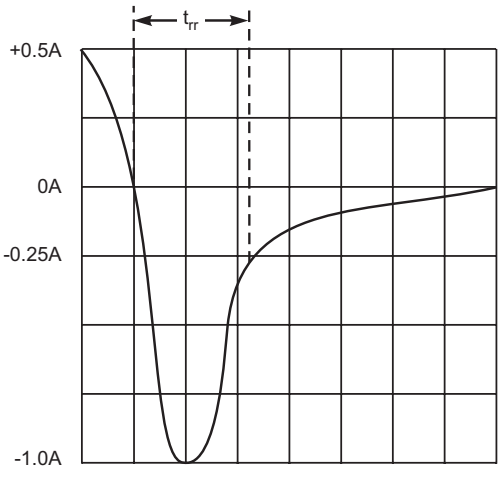


Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

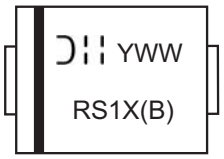
Ordering Information (Note 6)

Device*	Packaging	Shipping
RS1x-13-F RS1xB-13-F	SMA SMB	5000/Tape & Reel 3000/Tape & Reel

* x = Device type, e.g. RS1D-13-F (SMA package); RS1JB-13-F (SMB package).

Notes: 6. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



RS1X = Product Type Marking Code, ex: RS1G (SMA package)
RS1XB = Product Type Marking Code, ex: RS1GB (SMB package)
= Manufacturer's Code Marking
YWW = Date Code Marking
Y = Last Digit of Year ex: 6 for 2006
WW = Week code 01 to 52